

Application No. 10/657,058
Amendment dated March 21, 2005
Reply to Office Action of January 21, 2005

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Amendments to the Claims:

Please merge claims 1-7 of the suspended first reissue application (Serial No. 10/124,934, filed April 18, 2002) with the allowable claims of the present reissue application under 37 C.F.R. 1.177(c), consistent with the presentation of claims 1-8, 10, 12 and 13 as presented below.

Listing of Claims:

1. (Original) A transmission system (10) comprising a master friction clutch (14) for drivingly coupling an engine (12) to a compound mechanical transmission (16) including a main section and an auxiliary section, a shift member (150, 176) for moving a selected positive clutch member (151A) in said main section to a selected one of an engaged or a disengaged position and means (120, 146) independent of operation of said shift member and said master friction clutch for sensing a requirement to move said selected positive clutch member from said engaged position to said disengaged position and for providing an intent-to-shift signal indicative thereof, said system characterized by:

a detent mechanism (156/172, 186/196) for providing a selectively variable resistance to movement of said clutch member from said engaged to said disengaged position, said detent mechanism having a first condition for providing a greater resistance to movement of said clutch member from said engaged to said disengaged position and a second condition for applying a lesser resistance to movement of said clutch member from said engaged to said disengaged position, said detent mechanism assuming said second condition upon sensing said intent-to-shift signal.

2. (Original) A method for controlling a transmission system comprising a master friction clutch (14) for drivingly coupling an engine (12) to a compound mechanical transmission (16) including a main section and an auxiliary section, a shift member for moving a selected positive clutch member in said main section to a selected one of an engaged or a disengaged position, means independent of operation of said shift member and said master friction clutch for sensing a requirement to move said selected positive

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clutch member from said engaged position to said disengaged position and for providing an intent-to-shift signal indicative thereof, and a detent mechanism for providing a selectively variable resistance to movement of said clutch member from said engaged to said disengaged position, said detent mechanism having a first condition for providing a greater resistance to movement of said clutch member from said engaged to said disengaged position and a second condition for applying a lesser resistance to movement of said clutch member from said engaged to said disengaged position, said method comprising:

in the absence of said intent-to-shift signal, causing said detent mechanism to assume said first condition, and

upon sensing said intent-to-shift signal, causing said detent mechanism to assume said second condition.

3. (Original) The method of claim 2 wherein said means provides a signal indicative of a target gear ratio and said method further comprises causing said detent mechanism to assume said first condition upon sensing engagement of said target gear ratio.

4. (Original) A manually shifted change-gear transmission system comprising a master friction clutch (14) for drivingly coupling an engine (12) to a compound mechanical transmission (16) including a main section and an auxiliary section, a manually operated shift lever for moving a selected clutch member in said main section to a selected one of an engaged or a disengaged position, said transmission system comprising:

means independent of operation of said master friction clutch and manual movement of said shift lever to sense an operator desire to shift said clutch member from said engaged to said disengaged position and to provide a signal indicative thereof, and

a detent mechanism for providing a selectively variable resistance to movement of said clutch member from said engaged to said disengaged position, said detent mechanism having a first condition for providing a greater resistance to movement of said clutch member from said engaged to said disengaged position and a second condition for applying a lesser resistance to movement of said clutch member from said engaged to said disengaged position, said detent mechanism assuming said second condition upon sensing said signal.

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5. (Original) A partially automated transmission system comprising a fuel-controlled engine, an engine controller for controlling fueling of the engine in accordance with command output signals, a compound multiple-speed mechanical transmission having an input shaft driven through a master friction clutch by the engine, an output shaft, a main transmission section shifted by a manual shift lever and an auxiliary section, an operator selector movable to a first position for selection of upshifts to a target ratio and to a second position for selection of downshifts to a target ratio, and a control unit for receiving input signals and processing same according to predetermined logic rules to issue command output signals, said system characterized by:

a detent mechanism for providing a selectively variable resistance to movement of said shift lever from a ratio-engaged to a ratio-disengaged position, said detent mechanism having a first condition for providing a greater resistance to movement of said shift lever from said ratio-engaged to said ratio-disengaged position and a second condition for applying a lesser resistance to movement of said shift lever from said ratio-engaged to said ratio-disengaged position, and

said logic rules being effective to determine, independently of operation of said master friction clutch and said shift lever, a driver intent to move said shift lever to said ratio-disengaged position and, upon sensing such intent, causing said detent mechanism to assume said second condition.

6. (Original) The transmission system of claim 5 wherein said shift lever is operable to cause axial movement of a shift rail, said detent mechanism comprising a notch in said rail and a detent plunger biased with variable force to engage said notch.

7. (Original) The transmission system of claim 6 wherein said notch and said plunger are provided with complementary ramped surfaces.

8. (New) A partially automated transmission system comprising:
a fuel-controlled engine,
an engine controller for controlling fueling of the engine in accordance with
command output signals.

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a compound multiple-speed mechanical transmission with a main transmission section shifted by a manual shift lever in combination with an auxiliary section and having an input shaft driven through a master friction clutch by the engine, an output shaft,

a first operator selector movable to a first position for selection of a first mode of operation of an accessory otherwise unconnected with the transmission and said first operator selector movable to a second position for selection of a second mode of operation of said accessory,

a second operator selector movable to a first position for selection of upshifts to a target ratio and movable to a second position for selection of downshifts to a target ratio,

a control unit for receiving input signals and processing same according to predetermined logic rules to issue command output signals,

a detent mechanism for providing a selectively variable resistance to movement of said shift lever from a ratio-disengaged to a ratio-engaged position, said detent mechanism having a first condition for providing a greater resistance to movement of said shift lever from said ratio-disengaged to said ratio-engaged position and a second condition for applying a lesser resistance to movement of said shift lever from said ratio-disengaged to said ratio-engaged position, and

said logic rules being effective to determine, dependent on the operator selection of the first mode and the second mode of operation of the accessory, a driver intent to maintain said shift lever in said ratio-disengaged position and, upon sensing such intent, causing said detent mechanism to assume said first condition and said logic rules being effective to determine, independently of operation of said master friction clutch and said shift lever, a driver intent to move said shift lever, wherein said intent-to-maintain signal is provided only if there is no signal from the second operator selector indicating an intent-to-shift.

10. (New) A transmission system (10) comprising:

a mechanical transmission for a motor vehicle, the transmission being a compound mechanical transmission with a main transmission section shifted by a shift member in combination with an auxiliary section,

a master friction clutch for drivingly coupling an engine to the mechanical

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transmission.

said shift member for moving a selected positive clutch member within the transmission to a selected one of an engaged or a disengaged position,

means for sensing a requirement to maintain said selected positive clutch member in said disengaged position and for providing an intent-to-maintain signal thereof, said intent-to-maintain signal being dependent on the operation of an accessory otherwise unconnected with the transmission.

a detent mechanism for providing a selectively variable resistance to movement of said clutch member from said disengaged to said engaged position, said detent mechanism having a first condition for providing a greater resistance to movement of said clutch member from said disengaged to said engaged position and a second condition for applying a lesser resistance to movement of said clutch member from said disengaged to said engaged position, said detent mechanism assuming said first condition upon sensing said intent-to-maintain signal,

a second operator selector movable to a first position for selection of upshifts to a target ratio and movable to a second position for selection of downshifts to a target ratio, and

means independent of operation of said shift member and said master friction clutch for sensing a requirement to move said selected positive clutch member, wherein said intent-to-maintain signal is provided only if there is no such requirement to move sensed.

12. (New) A transmission system comprising:
a mechanical transmission for a motor vehicle,
a master friction clutch for drivingly coupling an engine to the mechanical transmission,
a shift member for moving a selected positive clutch member within the transmission to a selected one of an engaged or a disengaged position,
means independent of operation of said shift member and said master friction clutch for sensing a requirement to move said selected positive clutch member from said engaged position to said disengaged position and for providing an intent-to-shift signal indicative thereof.

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means for sensing a requirement to maintain said selected positive clutch member in said disengaged position and for providing an intent-to-maintain signal thereof, said intent-to-maintain signal being dependent on the operation of an accessory otherwise unconnected with the transmission.

a detent mechanism for providing a selectively variable resistance to movement of said selected positive clutch member from said engaged to said disengaged position, said detent mechanism having a first condition for providing a greater resistance to movement of said selected positive clutch member from said engaged to said disengaged position and a second condition for applying a lesser resistance to movement of said selected positive clutch member from said engaged to said disengaged position, said detent mechanism assuming said second condition upon sensing said intent-to-shift signal, and

said detent mechanism also providing a selectively variable resistance to movement of said selected positive clutch member from said disengaged to said engaged position, said detent mechanism having a third condition for providing a greater resistance to movement of said selected positive clutch member from said disengaged to said engaged position and a fourth condition for applying a lesser resistance to movement of said selected positive clutch member from said disengaged to said engaged position, said detent mechanism assuming said third condition upon sensing said intent-to-maintain signal.

13. (New) A transmission system as set forth in claim 12 wherein the transmission is a compound mechanical transmission with a main transmission section shifted by said shift member in combination with an auxiliary section, and the transmission system also has an operator selector movable to a first position for selection of upshifts to a target ratio and movable to a second position for selection of downshifts to a target ratio, further wherein said intent-to-maintain signal is provided only if no requirement to move is sensed.